

S09 C45 - Ethical, moral & cultural issues

Section 09 - Legal moral ethical & cultural issues

Monday, October 2, 2023

Key terms

Moral

- Concerned with the principles of right and wrong behaviour

Cultural

- Relating to the ideas, customs, and social behaviour of a society

Artificial intelligence

- The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.

Personal information

- Factual or subjective information, whether recorded or not, about an identifiable individual

Objectives

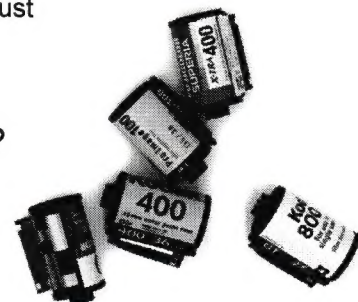
- Discuss the individual (moral), social (ethical) and cultural opportunities and risks of digital technology, including:
 - computers in the workforce
 - automated decision making
 - artificial intelligence
 - analysis of personal information
- Discuss the environmental effects of computers

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Connection

Digital technology and the workforce

- Photography was once a big employer. In 1989 (when the Web began) Kodak employed 145,000 people
 - By 2015, after selling patents to escape bankruptcy, the remains of the company employed 8,000
 - In 2013, the smartphone photo platform Instagram, with just 13 fulltime staff, was sold to Facebook for \$1bn
- What impact do you think this had on people?



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Activation

Digital content

- Music, video and publishing is open to anyone who uses smart technology
- Consumers pay less, or nothing
- Therefore musicians, film-makers and authors earn less, or nothing
 - Is this a Good Thing?

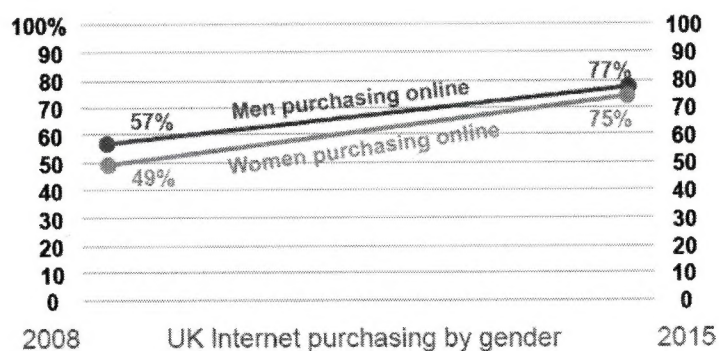


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Activation

Buying online

- Three-quarters of British consumers purchase goods and services online



Buying online

- The UK spends most (per head) online
 - What does this mean for shop workers?

Internet sales per shopper 2014-2015			
	Sales per shopper 2014	Sales per shopper 2015	% Increase
UK	£1,071	£1,174	9.6%
Germany	£890	£1,023	14.9%
France	£767	£847	10.4%
Spain	£458	£499	8.9%
Italy	£444	£485	9.2%
Netherlands	£613	£663	8.1%
U.S.	£1,043	£1,120	7.4%
Canada	£731	£780	6.8%

Pricing online

- You don't need inside knowledge to find the best deal, just a price comparison website
- There are comparison sites for comparing comparison sites
- Economists describe **competition** as working best when buyers and sellers all have **perfect information** about price, and also usefulness, quality and production methods

Pricing online

Task: what ethical questions might buyers have about production methods?

These might include:

The value of personal information

- In 2015, Facebook's total revenue was almost \$18 billion - but it's free to use
- Most of the money comes from advertising
- Advertisers pay to target particular users – perhaps 16-18 year olds studying Computer Science and who speak English. YOU!
- Advertisers bid against each other in auctions for access to YOUR eyes and ears
 - What are advertisers paying for ?

Social platform assets

- Facebook's assets are its huge **userbase**, and the **data** it stores about each individual user – their likes, locations, age, and friends.
- A famous saying in advertising is

"Half the money I spend on advertising is
wasted; the trouble is I don't know which half."

But digital tracking can help reveal who clicked what before buying things online.

Activity

- Use the internet to answer Task 1 in S09 C45 - Worksheet

Save as: S09 C45 Worksheet (your name)
Save in: Section 9

e-Government

- Estonia has developed a sophisticated system of e-Government, from national to local levels
- 95% of tax declarations are filed electronically
- In the 2015 Parliamentary Elections, Internet voting accounted for 30.5 percent of the votes cast. Estonians worldwide cast their votes from 116 different countries
- A nationwide eHealth system integrates data to create a common record for each patient

Task : e-Problems

- What problems need thinking about regarding Estonia's e-Government?

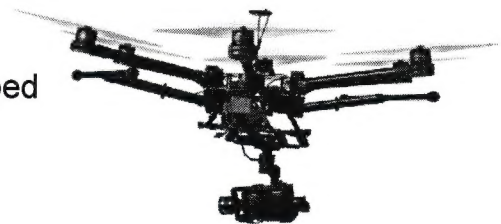
Activity

- Use the internet to answer Task 2 in S09 C45 - Worksheet

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Ethics and robotics

- Solving the technological problems of robotics can bring a focus on ethical questions
- Ethics is concerned with what is good for individuals and society and is also described as moral philosophy
- An example is how we program autonomous robots:
 - driverless vehicles, drones, robotic surgeons and security systems all raise questions

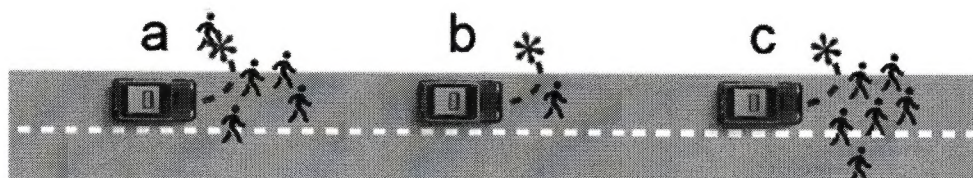


Asimov's Laws

- The author Isaac Asimov devised Three Laws for Robots:
 - A robot may not injure a human being or, through inaction, allow a human being to come to harm
 - A robot must obey the orders given it by human beings except where such orders would conflict with the First Law
 - A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws

But it may not be simple...

- How should you program a driverless car?
 - (a) The car can stay on course and kill several pedestrians, or swerve and kill one passer-by
 - (b) The car can stay on course and kill one pedestrian, or swerve and kill its passenger
 - (c) The car can stay on course and kill several pedestrians, or swerve and kill its passenger



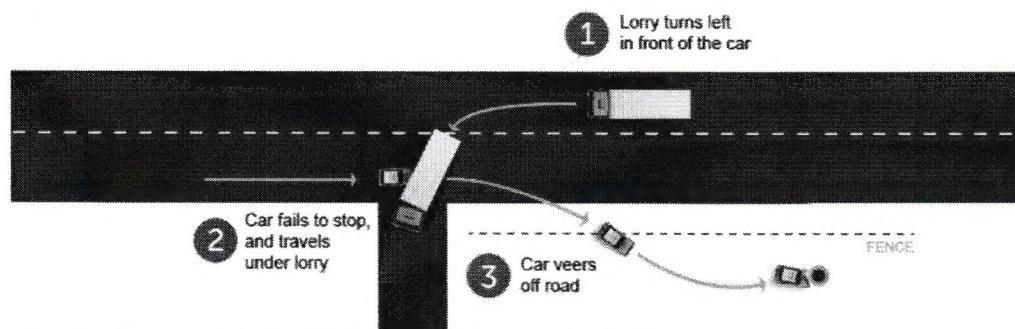
Ethical frameworks

- If a manufacturer offers different versions of its moral algorithm, and a buyer knowingly chose one of them, is the buyer to blame for the harmful consequences of the algorithm's decisions?



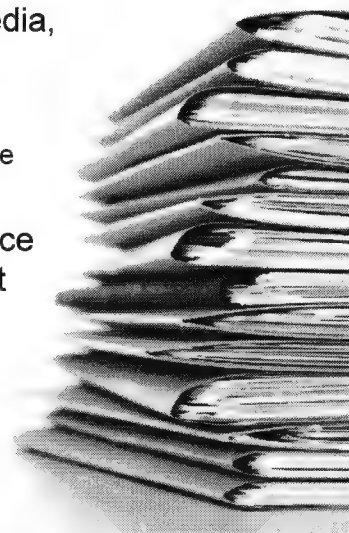
The Tesla fatal crash

- In May 2016, Joshua Brown of Ohio became the first known fatal casualty in a self-drive car crash
 - The Tesla Model S crashed into a truck that was turning left in front of it. The Tesla then ran off the road, hitting a fence and a telegraph pole before coming to a stop



Screening people

- Artificial intelligence algorithms can analyse social media, CVs, credit ratings, buying history, postcode data and more
 - Without automated screening these processes would have to be done manually
- Employers, universities, law enforcement and insurance companies all use algorithms and data to some extent



Artificial intelligence

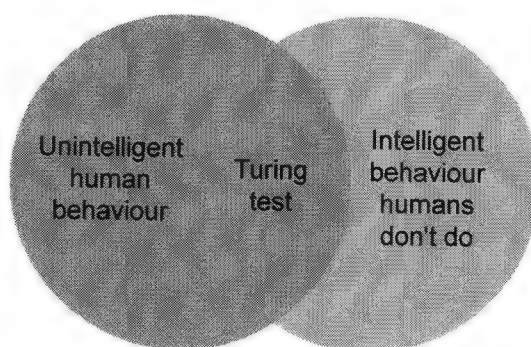
- Computers have outplayed humans at chess, can compute faster and more accurately (which is why they were built in the first place), and can drive cars and fly aircraft

Task

- What would it mean to say that a computer has intelligence?

But ...

- Not all humans behave intelligently; and not all intelligent behaviour is done by humans (like fast calculation)



Activity

- Discuss the questions in Task 3 in S09 C45 - Worksheet

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Environmental effects of digital technologies

- Digital devices use up vast quantities of precious metals and other resources
- Data centres round the world ("the cloud") use more energy than the whole of the UK uses for heat, light, transport ...
- But are there positive effects that outweigh the negative environmental impacts?

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Environment management

- Digital control systems allow control of energy use in the home, industry, and transport
 - For example, dishwashers can be run when the wind is powering turbines to provide electricity

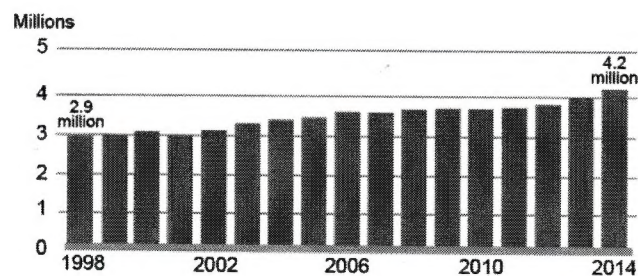


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Activation

Lifestyle and the environment

- In 2014, 14% of 30 million working adults 4.2 million people worked from home
- About half were managers or professional



Task: Lifestyle and the environment

- How is the environment and lifestyle affected by working from home?

Consolidation

What impact do you think the pace of technology has on the environment?

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Homework

- Write notes on chapter 45
- Complete textbook exercises on chapter 45